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## **GlideinWMS**

Marco Mambelli

Stakeholders Meeting

March 10, 2021

# Agenda

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- Status update
- Important changes
- Project Progress and Roadmap
- Developers' spotlight
- Stakeholders Reports or Presentations
- Roundtable
- Open discussion

## Project status updates

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- v3.6.5 is in OSG production (OSG 3.4 and 3.5)
- v3.7.2 in OSG upcoming (OSG 3.5)
- v3.9.1 in OSG development → OSG contrib (Python 3) and OSG 3.6 production (soon)
  
- Project effort unchanged
  - 2.15 FTE
  - Management and 4 developers
  - Everyone involved also in other projects: Factory Ops, HEPCloud, Jobsub, FIFE support, Landscape

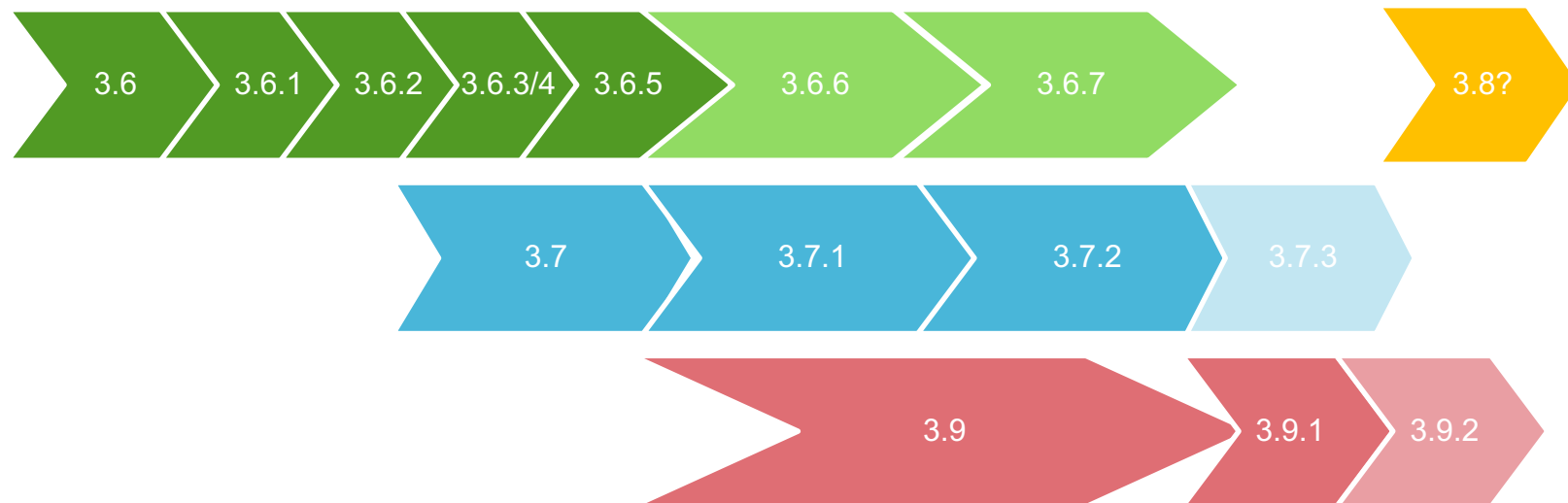
## Important changes

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- 3.7.2
  - Look for HTCondor configuration changes (.rpmnew in /etc/condor/config.d/)
  - Drop GLExec support (remove it from your configuration)
- Planned for 3.7.3
  - Incompatible changes to the token configuration - anyone using tokens?
  - Default to shared port in User Collector
- And please review periodically your tickets/priorities  
<https://cdcv.s.fnal.gov/redmine/projects/glideinwms/wiki/RoadmapSummary>

# GlideinWMS Releases



- 3 release series in OSG 3.5
  - Production, also in OSG 3.4, closed
  - Development – more disruptive changes (tokens, logging) [OSG]
  - Python 3, soon also in OSG 3.6 [HEPCloud]
- Fixes in the lowest possible series
- Features propagated only to greater series

# Release series proposal

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- Stop development for 3.6
- 3.7/3.8 main release in OSG 3.5 (but OSG upcoming)
  - Python 2
  - Support GSI and JWT (with proper HTCondor)
  - How do you plan to use it?
    - GSI, Tokens (SciTokens/WLCG), both?
    - Which HTCondor version?
- 3.9 main release in OSG 3.6 (and OSG contrib)
  - Python 3
  - No GSI in OSG 3.6
  - Who is planning to use Python 3?
- OSG release series
  - Should 3.7/3.8 go also in OSG 3.5 (production)?
  - If Yes, should 3.9 go to OSG 3.5 upcoming?
  - OK not to have Python 2 in OSG 3.6?

## New features and fixes (development)

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- 3.7.3 – mid March
  - Improved and better documented Tokens support (OSG)
    - Removed sudo requirement for Pool IDTOKENS
    - Consider tokens as regular credentials in configuration
    - Bug fixes and suggestions from OSG hackathons
  - Fixed HTCondor configuration issues
    - root unable to remove Glideins
    - Incompatibility w/ HTCondor 8.9.10
  - Glidein improvements (OSG, CMS)
    - Fixed security problem in HTCondor configuration
    - Enhanced search for Singularity binary (better override and configurability)
      - Unprivileged singularity in CVMFS is tested first
    - Remove LD\_PRELOAD from the environment in Singularity by default
    - Fail, no fall-back when the user-provided Singularity image is missing
    - **Run periodic scripts in Singularity**
  - Separate httpd RPM (OSG)
  - Added layer to account for pilot entries in OSG\_autoconf
  - “\$AttributeName” in Factory/Frontend configuration
  - **Setup CVMFS via cvmfsexec when not available (at least recipe)**

## Dennis Box

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- Focused on 3.7.3 release/Token Auth
  - RC1 – by the end of this week
  - User feedback from previous releases and hackathons have been implemented
  - SciToken file location/matching from Frontend config files
  - IDToken auth more configurable
  - Self generation of Glidein Site IDTokens more efficient
  - SciTokens and IDTokens are presented to Glidein Sites by Factory if supplied from Frontend.
    - IF Glidein Site doesn't accept tokens
      - OR Tokens not generated by VO
      - OR Tokens fail to authenticate for other reasons:
    - THEN Glideins fall back to GSI authentication



## Dennis Box

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- Status of GSI-free authentication
  - End-to-end token authentication has been demonstrated
  - However, much of the code is still GSI-centric
    - 15 years 60000 loc python 20000 loc shell mumble grumble
  - It is possible to configure GSI free submission, then sit back and watch things blow up.
    - ex: GWMS is obsessive about checking the validity of proxies.
  - It is possible to add valid GSI certs/proxies back into configuration and verify that token authentication is doing all the work
    - Also verifiable that GSI fallback works when tokens are missing/invalid
  - We are fixing the GSI code as we bump against it
    - 3.7.4 may be 'truly' GSI-free.

## Marco Mascheroni

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- Worked on attribute expansion feature
  - XML preprocessing where ‘\$AttributeName’ values are expanded like in bash
  - Mostly based on an old feature (by Igor!) that Marco Mambelli rebased to the 3.6 series
  - Bug fixed and verified it works on actual production setup
    - Working on a fix: submit attributes are not expanded correctly
- *cvmfsexec* integration (To allow CVMFS usage even if not installed):
  - Testing solution that Namratha developed on a real site
  - Got it to work locally on the cluster head node
  - Plan to test the whole roundtrip (but run into issues with CE)
- HEPCloud early adoption by CMS
  - Deployed a test machine with Saqib (CMS global pool operator)
  - Basic setup ready, need a “working” configuration now!
    - We understand that, as early adopters, some things might be ugly, but we are still eager to test it and provide feedback! :)

## New features and fixes (Python 3)

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- 3.9.1 – Released 2/11
  - Includes 3.7.2 features and fixes
  - Includes some 3.7.3 features
  - Python 3 code
    - Fixed duplicate glideclient classads - problem with hash() in Python 3
  - Package httpd configuration in Factory and Frontend in a separate RPM
- 3.9.2 will follow 3.7.3 release

## Bruno Coimbra

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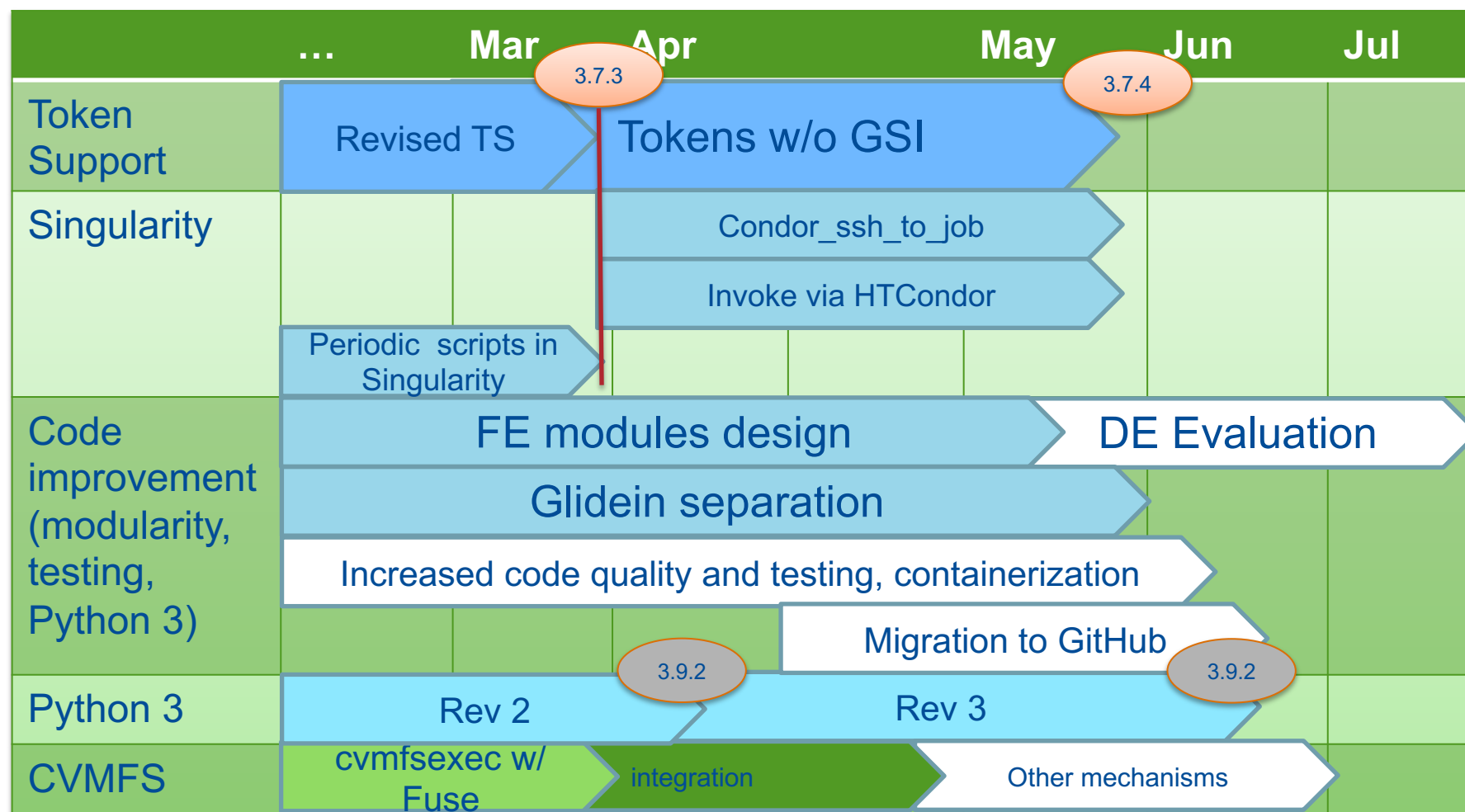
- GlideinWMS 3.9.1 (Python 3)
  - The release is now available in the OSG 3.5 development repository (to be contrib)
  - We also built this release for OSG 3.6 upcoming (to be production - currently EL7 only)
- `check_python3_expr.py`
  - Future Python 3 releases will feature a new tool to validate Python code used in Frontend configuration files
  - This will be used to validate the configuration during the Frontend reconfig operation
  - The tool can also be used manually in order to get 2to3 suggestions

## Bruno Coimbra (cont)

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- Custom execution points for VO scripts
  - I'm currently working with Marco to redesign the configuration parameters for VO scripts
  - We want a robust glidein core flexible enough to allow easy customizations from VO and Factory ops
  - We are adding new customization points and providing more clear ways to control them
  - Both configuration models should coexist during the transition
- Python 3 Focus
  - Address the open issues for the 3.9 branch
  - Improvements of Python 3 code

# Development Roadmap overview



Dennis Box

Bruno Coimbra

Marco Mambelli

Marco Mascheroni

Interns

Not assigned



## Roadmap in detail – Plans for 3.7.3 (mid May)

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<https://cdcv.sfnal.gov/redmine/projects/glideinwms/roadmap>

- Ease operations
- Use of token authentication (OSG) – Dennis
  - Support and cleanup / refactoring of credentials handling
  - No errors if no GSI
- Singularity support (CMS/OSG/Fermilab) – Marco Mambelli
  - Work on sites without Singularity or CVMFS installed – Dave, Namratha
  - Simplified code by Singularity invocation via HTCondor
  - Simplified troubleshooting by allowing ssh to job in Singularity
  - Ongoing collaboration w/ OSG – Mats
- Containerization (OSG/Fermilab/FactoryOps)
  - Factory and Frontend in containers
  - Ongoing collaboration w/ Fermilab/OSG/FactoryOps – Shreyas, Farrukh, Diego, Edgar

## Roadmap: modularity and code quality (HEPCloud/OSG)

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- Improvements of Python 3 version - Bruno
  - Better code structure and packaging
  - Remove additional obsolete code
- Glidein as 3<sup>rd</sup> component (DE, containerization) – Marco Mmb
  - Separate packaging
  - Easier and more robust support for custom scripts - Bruno
- Improve modularity of Frontend (DE) - Marco Mambelli
  - Configuration
  - Business logic <https://drive.google.com/file/d/1KTThCsx4ZGjxwqe-gfZtonT3eGJamPed/view?usp=sharing>
  - Communication w/ Factory
- Integration with HEPCloud/DecisionEngine (HEPCloud/CMS)
- Expand, simplify and automate testing



# Summary

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- Development focus
  - Tokens
- Expect more development also for
  - Glideins
  - Singularity
  - Frontend modularity

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# Extra Slides

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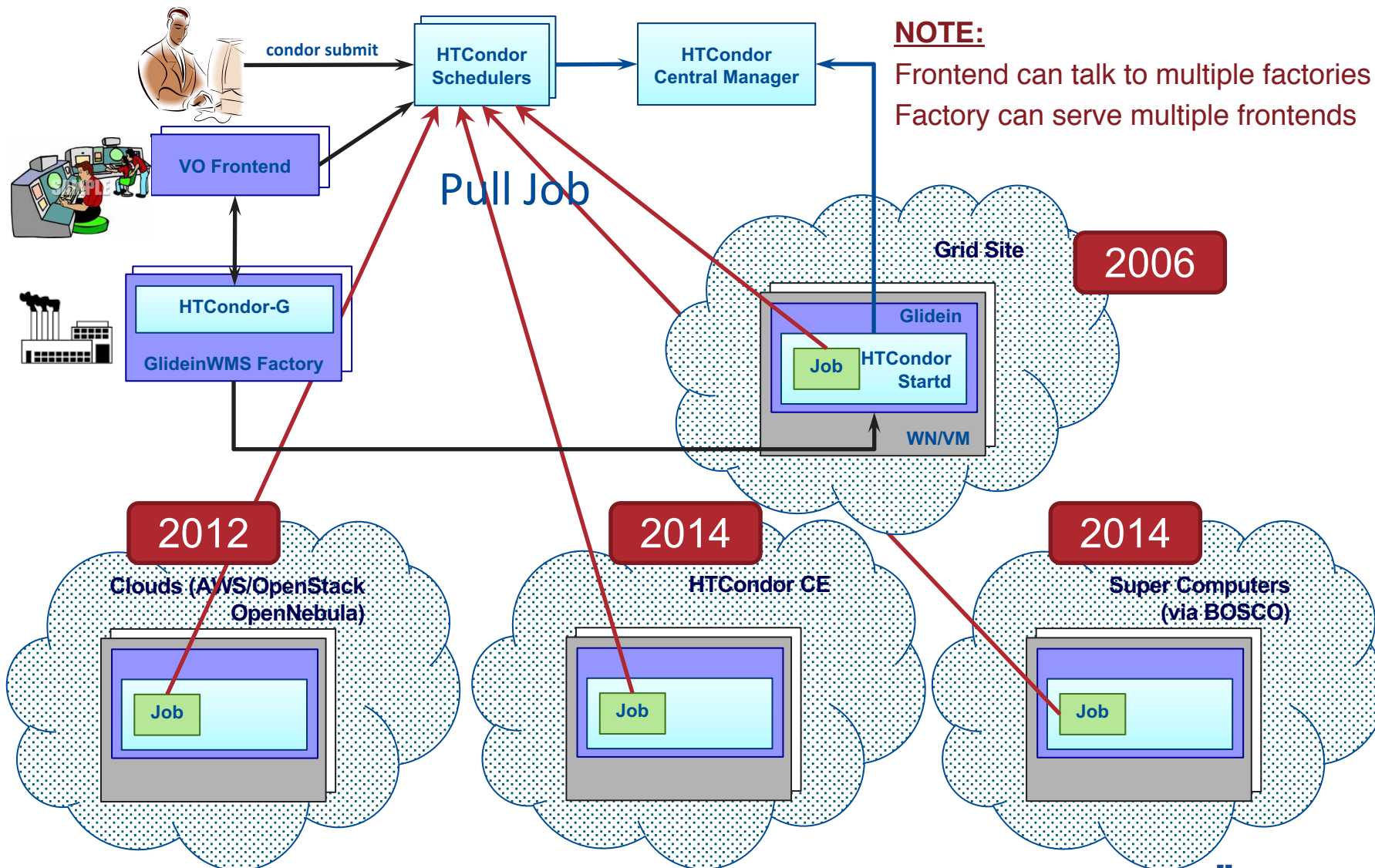
# Reference Slides

## Move to single user Factory

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- Starting from release v3.5
- All Glideins will run using the factory user, no more separate users per-VO
  - Currently different VOs (Frontend groups) can use different users to improve isolation
- It is safe
  - The HTCondor team assured us that once we remove Globus GRAM support, the other Gridmanager clients cannot decide which file to retrieve from the Factory (it is HTCondor on the Factory deciding what to send), so will be safe to run as a single user
- The directory structure will remain the same
  - Only the ownership will change
  - Your log files will be in the same place
- Migration:
  - GWMS will provide instructions and tools to ease it: change the files ownership, ...
  - if you use HTCondor < 8.7.2 you can upgrade GWMS when convenient for you
  - if you need HTCondor >= 8.7.2 (including 8.8) we recommend to upgrade
    - but if you want to delay the change to 3.5 you can still do that if you are comfortable in using the glideinwms-root-switchboard RPM that we built and tested, but is not supported by OSG.

# GlideinWMS



# Quick Facts: Releases & Support Structure

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- Releases
  - Issues tracked in redmine issue tracker
    - <https://cdcvns.fnal.gov/redmine/projects/glideinwms/issues>
    - Categorized and prioritized based on impact, urgency and requester
      - Issues are now associated with respective stakeholders
    - Issues are assigned based on developer's expertise and other workload
    - Roadmap for upcoming releases available in redmine (See reference slides)
  - SCM
    - All releases are version controlled and tagged
    - <http://glideinwms.fnal.gov/doc.prd/download.html>
  - Release notes & history
    - <http://glideinwms.fnal.gov/doc.prd/history.html>
- Support
  - Entire development team is responsible for support

## Quick Facts: Project Status & Communication Channels

- Project meeting: Wednesdays 10 – 11 am
  - Technical discussions & status updates
  - Regular stakeholder participation
  - Contact Parag Mhashilkar if you need invite for this meeting
- Stakeholders Meeting every two months
- Project Management
  - Project Status reported monthly at CS Project status meetings

Area of Interest	Mailing Lists
Support	<a href="mailto:glideinwms-support@fnal.gov">glideinwms-support@fnal.gov</a>
Stakeholders	<a href="mailto:glideinwms-stakeholders@fnal.gov">glideinwms-stakeholders@fnal.gov</a>
Release Announcements	<a href="mailto:glideinwms-support@fnal.gov">glideinwms-support@fnal.gov</a> <a href="mailto:cms-dct-wms@fnal.gov">cms-dct-wms@fnal.gov</a> <a href="mailto:glideinwms-stakeholders@fnal.gov">glideinwms-stakeholders@fnal.gov</a>
Future Release plans	See next slide
Discussions	<a href="mailto:glideinwms-discuss@fnal.gov">glideinwms-discuss@fnal.gov</a>
Code commits	<a href="mailto:glideinwms-commit@fnal.gov">glideinwms-commit@fnal.gov</a> Twitter Tag: @glideinwms

# Tracking Releases in Redmine

1. Visit the redmine issues tab for GlideinWMS or the URL

2. Click custom query for stakeholder or version roadmap

glideinWMS

Overview Activity Roadmap **Issues** New Issue Gantt Calendar Documents Wiki Files Repository Code reviews Settings

- OSG Tickets

Filters Options

Apply Clear

#	Tracker	Target version	Status	Priority	Subject	Assignee	Updated	OSG
<b>v3_2_10 7</b>								
2409	Feature	v3_2_10	New	High	Support validation scripts to run periodically (not just at pilot start)	Marco Mambelli	05/13/2015 01:26 PM	OSG VO
6897	Bug	v3_2_10	Feedback	High	Partitionable glideins not accounted for correctly	Parag Mhashikar	05/12/2015 04:42 PM	OSG
7927	Feature	v3_2_10	New	High	Per-frontend unique idle job counts	Marco Mambelli	04/13/2015 04:16 AM	OSG
4904	Feature	v3_2_10	Assigned	Normal	Specify a default for GWMS_XSLT_PLUGIN_DIR	Marco Mambelli	04/01/2015 01:43 PM	OSG
4846	Feature	v3_2_10	Assigned	Normal	Include GWMS_XSLT_PLUGIN_DIR setting in generated {factory,frontend}_startup	Marco Mambelli	04/01/2015 01:42 PM	OSG
7807	Feature	v3_2_10	New	Normal	Support CONDORCE_COLLECTOR_HOST for OSG sites	Parag Mhashikar	04/13/2015 03:21 AM	OSG
8437	Feature	v3_2_10	New	Normal	Split entry configuration from main factory config	Parag Mhashikar	04/27/2015 12:13 PM	OSG, CMS
<b>v3_2_x 12</b>								
4587	Bug	v3_2_x	Assigned	Normal	OSG: Automate / fix HTCondor-CE issues	Burt Holzman	02/03/2015 02:44 PM	OSG
6732	Bug	v3_2_x	New	Normal	Glideins report 100% success rate even if startd fails to start/run a matched job.	Marco Mambelli	03/04/2015 04:47 PM	CMS, OSG
3203	Feature	v3_2_x	Assigned	Normal	OSG: condor-g-analyze	Burt	02/03/2015 02:44 PM	OSG

Issues

View all issues  
Summary  
Calendar  
Gantt

My custom queries

Issues Awaiting My Feedback  
My Unassigned Issues

Custom queries

- CMS Tickets
- FIFE Tickets
- OSG Tickets
- One Facility Tickets
- Operations Tickets
- CMS Master Ticket
- Igor Sfiligoi's Tickets
- Issues Awaiting Developer Feedback
- Issues by Age
- John Weigand's Tickets
- List With Due Date
- My Open Issues
- Not Closed + Grouped by Assigned To
- Not Closed + Grouped by Target Version
- Open Bugs: High Priority
- Series v2.7.x
- Series v3.2.x
- Series v3.x
- Stakeholder Requests
- Tickets with no version
- Unassigned Tickets
- v3.2.10: Roadmap
- v3.2.9: Open Issues
- v3.2.9: Road Map
- v3.3: Road Map